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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/734,335

12/11/2003

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42P14839

1354

8791 7590 08/29/2007

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EXAMINER

ABDI, AMARA

ART UNIT

PAPER NUMBER

2624

MAIL DATE

DELIVERY MODE

08/29/2007

PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No. 10/734,335	Applicant(s) ACHARYA ET AL.	
	Examiner Amara Abdi	Art Unit 2624	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 27 June 2007.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1,3-6,8,10,12-15,17,19,21-24 and 26 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1,3-6,8,10,12-15,17,19,21-24 and 26 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 11 December 2003 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

1. Applicant's response to the last office action, filed June 27, 2007 has been entered and made of record.
2. In view of the Applicant Arguments, the objection to the specification because of lack summary section is expressly withdrawn.
3. In view of the Applicant amendments, the objections to the claims 1-27 are expressly withdrawn.
4. Applicant's arguments with respect to claims 1,3-6,8,10,12-15,17,19,21-24, and 26 have been considered but are moot in view of the new ground(s) of rejection.

Claim Rejections - 35 USC § 103

5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

6. Claim 1 is rejected under 35 U.S.C. 103(a) as being unpatentable over Ser et al. (US 2004/0199775) in view of Jain et al. "Hiding Fingerprint Minutiae in Images".

(1) Regarding claims 1,10, and 19:

- Ser et al. disclose a person's fingerprint (paragraph [0002], line 1-4) method, machine-readable medium having stored thereon instructions (paragraph [0023], line 1-3), and system (paragraph [0046], line 22) comprising:
- defining a plurality of minutiae in a fingerprint image (paragraph [0003], line 1-3;

paragraph [0123], line 1-2; and paragraph [0124], line 1-3);

estimating a score associated with a minutia corresponding to the validity of the minutia (paragraph [0078], line 5-6) including noise associated with the minutiae for the fingerprint image (paragraph [0028], line 15-18); and

matching the fingerprint image against one or more sample fingerprint images (paragraph [0077], line 1-4) utilizing a two-dimensional partial point set pattern matching (PSPM) algorithm (paragraph [0004], line 7-8, paragraph [0080], line 2-4, and paragraph [0081], line 1-2), (the minutia-matching algorithm is read as the same concept as the two-dimensional partial point set pattern matching (PSPM) algorithm) under translation and rotation (paragraph [0077], line 4-5) utilizing the score (paragraph [0078], line 5-6).

Ser et al. do not explicitly mention that the fingerprint image include the data related to x, y coordinates and an angle for a minutia.

Jain et al., in analogous environment, teaches hiding of fingerprint minutiae in images, where the minutiae data contains x-coordinate, y coordinate, and an angle (Figure 3, paragraph [3.1], line 35-36, and line 41-46), (the orientation is read as an angle).

It would have been obvious to one having ordinary skill in the art at the time the invention was made to use the system of Jain et al. in the method of Ser et al. in order to minimize possible degradation of the image as well as to enable secure biometric data (fingerprint) (See the Abstract, line 1-3, and line 12-13).

(2) Regarding claims 4,13, and 22:

Ser et al. further disclose the method, machine-readable medium having stored thereon instructions (paragraph [0023], line 1-3), and system (paragraph [0046], line 22) where the definition of the minutia (paragraph [0003], line 1-3; paragraph [0123], line 1-2; and paragraph [0124], line 1-3) includes data related to the estimated score for the minutia (paragraph [0078], line 5-6).

(3) Regarding claims 5,14, and 23:

Ser et al. further disclose the method, machine-readable medium having stored thereon instructions (paragraph [0023], line 1-3), and system (paragraph [0046], line 22) where estimating the score associated with the minutia includes estimating the score (paragraph [0078], line 5-6) for ridge flow properties associated with the minutia (paragraph [0062], line 5-9), (the ridge flow properties is read as texture pattern that contains ridges separated by valleys).

7. Claim 3 is rejected under 35 U.S.C. 103(a) as being unpatentable over Ser et al. and Jain et al., as applied to claim 1 above, and further in view of Larcher et al. (US 4,790,564).

(1) Regarding claims 3,12, and 21:

Ser et al. and Jain et al. disclose all subject matter as described in claim 1 above.

Ser et al. and Jain et al. do not explicitly mention the method, where the definition of the minutia includes data related to a classification of the minutia as a termination or bifurcation.

Larcher et al., in analogous environment, teaches automatic fingerprint identification system for matching fingerprint, where definition of the minutia includes data related to a classification of the minutia (column 6, line 61-63) as a termination or bifurcation (column 7, line 43-44).

It would have been obvious to one having ordinary skill in the art at the time the invention was made to use the system of Larcher et al., where the definition of the minutia includes data related to a classification of the minutia as a termination or bifurcation, in the system of Ser et al. in order to minimize the error due to the digitization of the variables used during the matching process (column 3, line 66-68).

(2) Regarding claim 6, 15, and 24:

Ser et al. and Jain et al. disclose all subject matter as described in claim 1 above.

Ser et al. and Jain et al. do not explicitly mention the method, where estimating the score for valley flow properties associated with the minutia.

Larcher et al., in analogous environment, teaches automatic fingerprint identification system for matching fingerprint, where estimating the score (paragraph [0078], line 5-6) for valley flow properties associated with the minutia (column 1, line 10), (the valley flow is read as a pattern consisting of lines corresponding the valley).

It would have been obvious to one having ordinary skill in the art at the time the invention was made to use the system of Larcher et al., where estimating the score for valley flow properties associated with the minutia, in the system of Ser et al. in order to limit the number of computations required to perform the matching of a latent print against file prints in the database (column 3, line 56-58).

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8. Claims 8,17, and 26 are rejected under 35 U.S.C. 103(a) as being unpatentable over Ser et al. and Jain et al., as applied to claim 1 above, and further in view of Lin et al. (US 6,763,127).

Ser et al. and Jain et al. disclose the entire subject as described in claim 1 above.

Ser et al. and Jain et al. do not explicitly mention the method, where summing the score for ridge flow properties, valley flow properties, and noise associated with the minutia.

Lin et al., in analogous environment, teaches an apparatus and method for fingerprint recognition system, where combining the scores from minutia matching and from ridge flow matching (column 3, line 19-23), (the combining of the scores from minutia matching and from ridge flow matching is read as the same concept as the summing of the score for ridge flow properties, valley flow properties, and noise associated with the minutia).

It would have been obvious to one having ordinary skill in the art at the time the invention was made to use the system of Lin et al., where combining the scores from minutia matching and from ridge flow matching, in the system of Ser et al. in order to extract useful fingerprint information when a partial fingerprint is acquired (column 1, line 18-20).

Conclusion

9. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

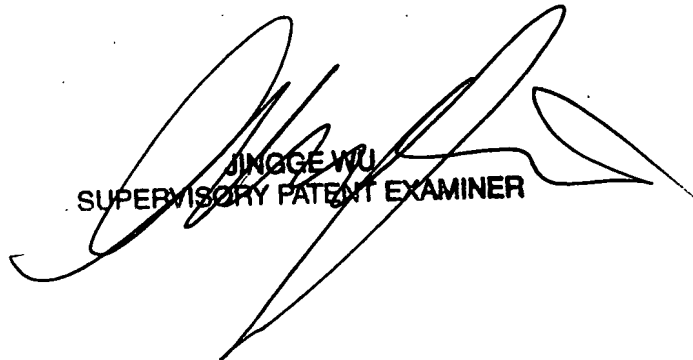
Contact Information

10. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Amara Abdi whose telephone number is (571) 270-1670. The examiner can normally be reached on Monday through Friday 7:30 Am to 5:00 PM E.T..

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Wu Jingge can be reached on (571) 272-7429. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

Amara Abdi
08/24/2007.


JINGGE WU
SUPERVISORY PATENT EXAMINER